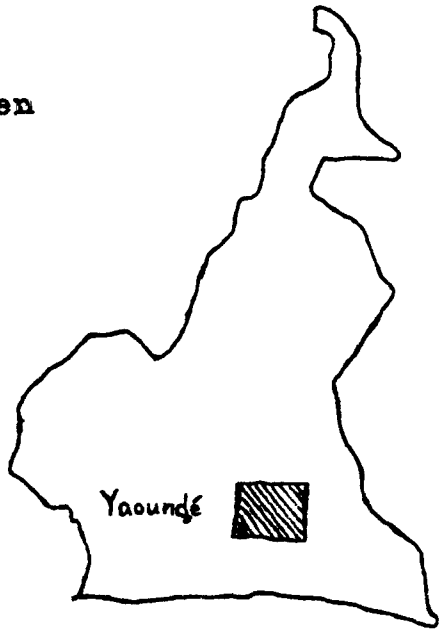
Table of Contents

0	Introduction	1
1	Inventory of Phones	3
2	Interpretation of Ambiguous Clusters	5
	2.1 Interpretation of Prenasalized Stops	5
	2.2 Interpretation of Labial and Palatal Phones	7
	2.3 Interpretation of Sequences of Similar Vocoids	10
3	Consonant Phonemes	12
	3.1 Stops	12
	3.2 Nasals	12
	3.3 Fricatives	14
4	Vowel Phonemes	16
5	Tone	39
6	Units above the Phoneme	41
	6.1 Syllable	41
	6.2 Radical	42
	6.3 Phonological Word	44

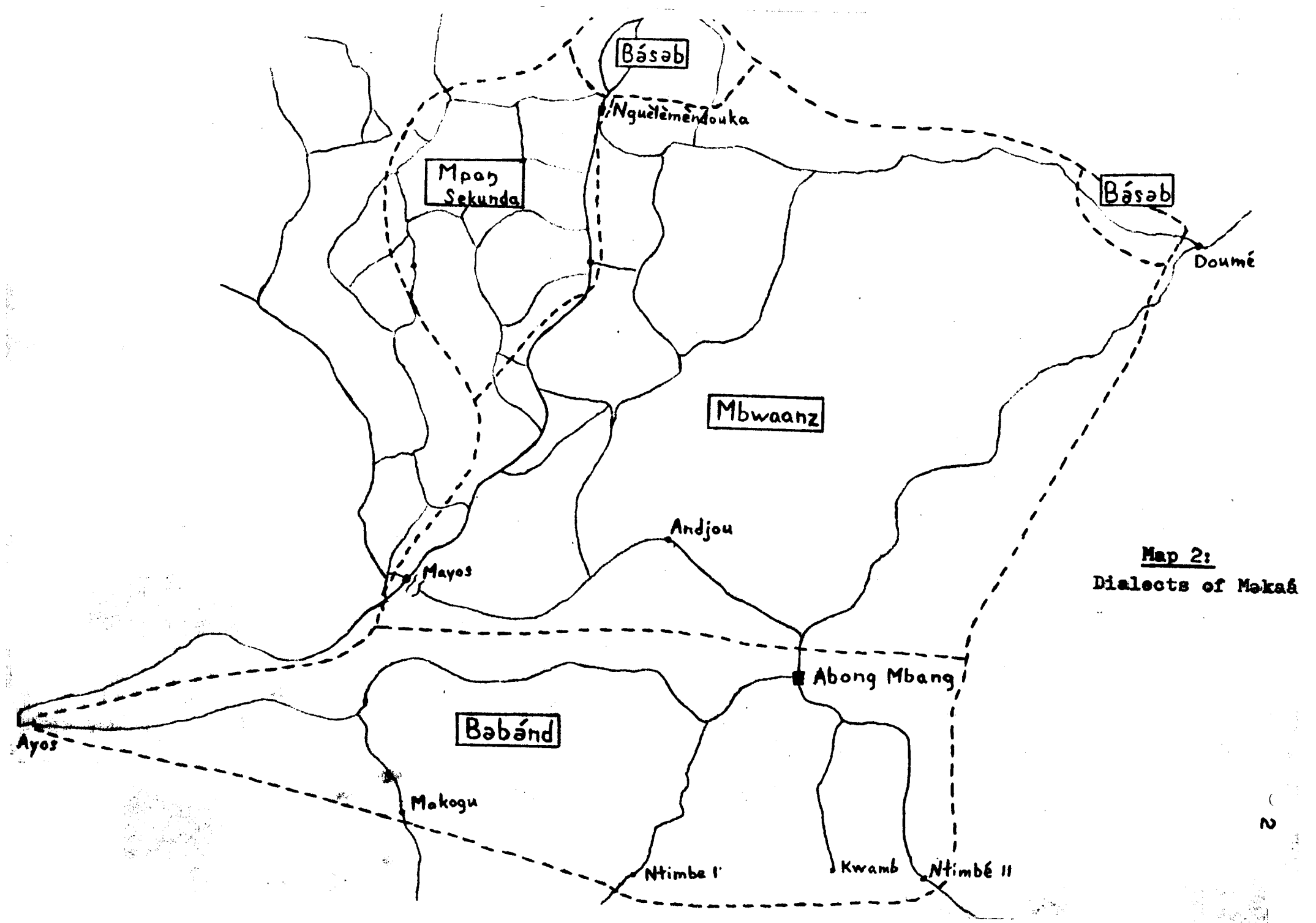
0. Introduction

The Məkaá language is a member of the 'Maka-Njem Group' identified by Guthrie as 'Makaa (A 83).' It is a Bantu language spoken in the Haut Nyong department in the Eastern Province of the United Republic of Cameroon (see Map 1). The people number about 70,000.

Map 1:
Area in Cameroon
where Məkaá is spoken



The Məkaá language is comprised of four main dialects, the Bəbɔ̂nd, the Mbwaanz, the Mpaŋ Sekunda, and the Bɔ́səp (see Map 2)[1]. The present phonology is of the Mbwaanz dialect and more specifically of the area along the Ndjonkol (Abong Mbang-Mayos) road. The Mbwaanz dialect was chosen because it is mutually intelligible by all the other dialects, it is the one spoken by the largest number of people (close to half the total population), and it is geographically the most central. For a further discussion of the dialect situation the reader may refer to a paper by the same authors entitled 'The dialect



Map 2:
Dialects of Makaá

situation of the Makaa language'.

We have carried out our research[2] primarily in the village of Andjou, 25 kms west of Abong Mbang along the Ndjonkol. As far as we know the only previous linguistic information written about the Mɔkaá language was done by Marie-Anne Toreton, a Catholic sister, who wrote a brief grammatical sketch and a 52-page lexicon. Some anthropological work has been carried out by Peter Geschiere, an anthropologist at the Free University in Amsterdam. He has published several articles and a doctoral dissertation on the Mɔkaá people. Keith Beavon, a member of the Société Internationale de Linguistique, has done research in the Kônzime language, a bordering language to the south and also a member of the Maka-Njem group. He has written a phonology (1977) and several papers on various aspects of the grammar, some published and some in manuscript form. Patrick Renaud (1976) has written a phonology and a morphology of the nouns of the Bajɛle language, a member also of the same family. Bajɛle is spoken by the pygmies in southwest Cameroon around Kribi and Lolodorf and is classified by Guthrie as A 80.

1 Inventory of Phones

The Mɔkaá language has the consonantal and vocalic phones shown on the following charts:

Chart 1: Inventory of Consonantal Phones

	LABIAL	ALVEOLAR	PALATAL	VELAR	LABIO-VELAR
STOPS:					
voiceless		t	c cw cy	k kw ky	kp
voiced	b, B bw by	d, D dw dy	j jw jy	g, G gw gy	
prenasalized					
voiceless	mp mpw mpy	nt	nc ncw ncy	ŋk ŋkw ŋky	
voiced	mb, mB mbw mby	nd, nD ndy	nj njw	ŋg, ŋG ŋgw	
NASALS:	m mw my	n	n nw	ŋ ŋw	
FRICATIVES:					
voiceless	f fw fy	s	š šw šy		
voiced	v	z	ž žw		
LATERALS:		l lw ly			
SEMI-CONSONANTS:	w		y	h	

Chart 2: Inventory of Vocalic Phones

	FRONT				CENTRAL				BACK			
	oral		nasal		oral		nasal		oral		nasal	
	short	long	s	l	s	l	s	l	s	l	s	l
HIGH												
close	i	ii	ɨ̃	ɨ̃ː	ɵ	ɵɵ			u	uu		ʊ̃ʊ̃
open	ɪ											
HIGHER-THAN-MID												
close	E	EE										
MID												
close	e	ee							o	oo		
open	ɛ	ɛɛ	ɛ̃	ɛ̃ɛ̃	a	aa	ã	ãã	ɔ	ɔɔ	ɔ̃	ɔ̃ɔ̃

sequences: ia, uo, ao, au
aw, aaw, ɛw, ɵw, ey, ow

2 Interpretation of Ambiguous Clusters

Some of the consonantal and vocalic phones are ambiguous as to their phonemic interpretation. In the following sections, we will discuss whether consonantal clusters are single phonemes or sequences of phonemes when they involve a stop preceded by a homorganic nasal. Also, we will discuss the interpretation of palatal and labial phones following consonants, following vowels, and intervocalically. Finally, we will discuss whether sequences of similar vocoids are one long or two short vowels.

2.1 Interpretation of Prenasalized Stops

All stops can be preceded by a homorganic nasal, resulting in the following clusters: [nt, ɲc, ŋk, mb, nd, ɲj, ŋg]. [mp] also occurs, even though [p] does not occur except in [mp] and [kp]. These may be interpreted as either consonant sequences or as unit phonemes.

One might interpret these as sequences for the following reasons:

1) The nasal-oral cluster may have both a voiced segment and a voiceless segment, such as in [mp].

2) Both nasals and oral stops occur independently, except [p].

3) Handling these as sequences would simplify the phoneme inventory.

4) A morpheme division can occur between the nasal and oral segments of a sequence, as illustrated in the way some nouns form their plurals. Examples:

[ɲ-jôŋ] (1) 'stranger' [o-jôŋ] (2) 'strangers'

[m-bwô] (3) 'arm' [me-bwô] (6) 'arms'

(In all examples low tone is unmarked.) One of the prefixes on class 1 and class 3 nouns is a homorganic nasal. Thus, in the above words, the radicals are [jôŋ] and [bwô], with a homorganic nasal prefix in the singular, and the plural prefixes o- and me- respectively. This puts a morpheme boundary between the nasal and oral segments.

However the following arguments lead us to interpret the prenasalized stops as unit phonemes.

1) Prenasalized stops have the same distribution as their oral counterparts (occurring word initially, medially, and finally). Examples:

[kwan]	'bee'	[ŋkwan]	'wedding gift'
[bû]	'break' (vb)	[mbû]	'year'
[joŋ]	'sky'	[ɲjôŋ]	'stranger'
[kwɛ̂ɛ̂G]	'lengthen' (vb)	[kwɛ̂ɛ̂ŋG]	'purify' (vb)
[ŋkɔ́D]	'without pity'	[ŋkɔ́nD]	'kind of mouse'
[kanda]	'tale'	[nada]	'stick' (vb)

2) There are no unambiguous sequences of consonantal

phones, such as [st] or [kl]. In fact, when two consonantal phones do occur together across word boundaries or in reduplicated words, a transitional [ə] is inserted, showing that consonants cannot be pronounced in sequence.

3) Interpretation of the prenasalized stops as sequences would complicate the syllable structure.

4) Due to a gap in the phoneme inventory, as has been mentioned earlier, there is no phoneme /p/ that could be combined with the phoneme /m/ to form the sequence /mp/, which does occur. Therefore /mp/ must be posited as a phoneme. The phoneme /p/ does occur in one other dialect. Borrowed words containing /p/ are usually pronounced with an /f/ instead.

2.2 Interpretation of Labial and Palatal Phones

Many consonantal phones can be labially or palatally released, as illustrated in charts 4 and 5. This labial or palatal release can be interpreted either as a semi-consonant or as a vowel. These releases are phonetically contoid rather than vocoid because they never carry tone contrasting with the following vocoid. Therefore they are interpreted as consonants, or rather, as semi-consonants, /w/ and /y/. This also avoids long vowel sequences. There are ambiguous sequences that could result in a VV or VVV sequence if the releases were interpreted as vowels, such as [$b^{y}a$] /bya/ 'give birth' (vb) and [$k^{w}e^{y}$] /kwey/ 'find' (vb).

Once the releases have been interpreted as semi-consants, a second question arises. Are these semi-

consonants, /w/ and /y/, and the preceding consonants sequences of phonemes, or unit phonemes? They are interpreted here as sequences of two phonemes for the following reasons:

1) The sequences do not have the same distribution as unit phonemes. They occur syllable-initially, but not syllable-finally, whereas the unit phonemes occur both initially and finally.

   Also there are gaps in the distribution of the palatal and labial sequences on the phone chart. Not all the unit phonemes have a palatal and a labial counterpart. (As has been mentioned previously, all the stops do have prenasalized counterparts.) /w/ does not occur after alveolars (except /l/, and /d/ in one example [dwo] d-wo 'cl. 5 prefix-your'); nor does /w/ occur after /v/, which has a limited distribution anyway. Like /w/, /y/ does not occur after /v/ or after alveolars, except /l/ and /d/, such as [ŋkwindye] 'elbow'. In some rare cases, /y/ does occur after palatals, such as /cy/, /jy/, and /ǰy/. Examples:

   [cyúŋ] 'voice, neck'

   [jyuga] 'key, cap (of bottle)'

   contrasting with [juga] 'stopper'

   [jyûm] 'tongue'

   [ǰyɛ̂] 'kind of tree'

2) There are many occurrences of Cw and Cy (more than of prenasalized stops) so that interpreting these as units would greatly increase the phoneme inventory. /w/ and /y/ already exist as separate phonemes.

Another question that might be raised regarding palatal phones is whether palatal consonants are really palatalized alveolar consonants, that is, whether [c, ɲc, j, ɲj, ɲ, š, ž] are to be interpreted as /ty, nty, dy, ndy, ny, sy, zy/. This is not possible for the following reasons:

1) Some dialects have /dy/ in addition to /j/, and the dialect being analyzed has this contrast. Examples:
   [ŋkwindye] 'elbow' [ɲjiɲjamB] 'sorcerer'
2) [n], [š], and [ž] occur word finally, whereas palatally-released consonants do not.
3) Palatals can be labialized, so that would result in *tyw and *dyw. There are no other examples where palatalization and labialization occur together.
4) Similarly, [cy, jy, šy] would be interpreted as /tyy, dyy, syy/, and nowhere else is there double palatization.

The labial and palatal phones, [w] and [y], can also occur word-finally (syllable-finally) following a vowel. Again the question can be asked, whether these phones are to be interpreted as vowels or as semi-consonants. If they are interpreted as vowels, it would result in a complex syllable nucleus, or a new syllable. However, such words act as one simple syllable, with one simple nucleus. Such syllables have the same inventory of tonemes as other syllables, and the native speakers react to these syllables as just one syllable. Therefore, the [w] and [y] are interpreted as final consonants here. This also avoids dissimilar vowel sequences, V_1V_2, of which there are no unambiguous examples. Follow-

ing are some examples of words ending in /w/ or /y/.

[gwâw]	'up'	[kwêy]	'find'(vb)
[taw]	'goat'	[ɲey]	'torn'(vb)
[bâaw]	'kind of leaf'	[cey]	'hurt'(vb)
[kaaw]	'divide'(vb)	[fey]	'cut'(vb)
[bɛw]	'injure'(vb)	[kow]	'division'
[idŝw]	'food'	[jow]	'sharpen'(vb)

[ai] occurs across morpheme bounderies, when dependent clause marker [i] is added after a word ending in [a], in fast speech especially.

The two phones, [w] and [y], can also occur intervocalically. Here they clearly function as consonants, as the two contiguous vowels can have contrastive tone. These two vowels do not have to have the same quality, and nowhere else do two such vowels occur without an intervening consonant. It fits the common (C)VCV pattern of Bantu languages.[3] Examples:

[mpawó]	'meat, animal'	[kúwo]	'chicken'
[jawú]	'debt'	[mbíya]	'a lot'

2.3 Interpretation of Sequences of Similar Vocoids

It is difficult to determine whether sequences of similar vocoids are one segment or two, whether they are long vowels or sequences of short vowels. They could be interpreted as sequences of short vowels for the following reasons:

1) This would avoid adding more phonemes to the phoneme inventory, since the short vowels are already in the inventory.
2) Vocoid sequences have limited distribution, occur-

ring only in the first syllable of radicals. Thus the sequences do not seem to have the same status as short vowels.

We, however, have chosen to interpret the vocoid sequences as single phonemes, long vowels, for the following reasons:

1) This avoids adding a VC syllable pattern to the syllable inventory, since dividing sequences would lead to results such as CV.VC. It would also lead to four-syllable radicals, which are not found otherwise (such as CV.V.CV.CV).
2) There are no unambiguous VV sequences, that can be interpreted as two short vowels (but see 5) below).
3) Native speakers react to these vocoid sequences as one syllable, not two.
4) The same tone patterns found on short vowels (low, high, low-high, and high-low) are also found on long vowels. Though the low-high tone pattern is found primarily on long vowels it is found on short vowels as seen in the formation of some infinitives (example, /də/ 'eat', /də̌lə/ 'to eat').
5) There is another tone sequence on vocoid sequences, namely, low-high-low, which does not occur on short vowels. However, this always occurs word-finally, so in this case it seems appropriate to interpret these vocoids as a sequence of two short vowels. It does not add another syllable pattern, since there is already a V syllable. This is recognized as a complex pattern by native speakers. Examples:

[ifif]	'ashes'	[yaâ]	'grandmother'
[ɒkɛ̨ɛ̨]	'mud-dauber'	[ja bɛ̂]	'second time'

3 Consonant Phonemes

The consonant phonemes are shown on chart 3 below and the evidence is shown in charts 5 to 8.

Chart 3: Consonant Phonemes

	LABIAL	ALVEOLAR	PALATAL	VELAR	LABIO-VELAR
STOPS:					
voiceless		t	c	k	kp
voiced	b	d	j	g	
prenasalized					
voiceless	mp	nt	ɲc	ŋk	
voiced	mb	nd	ɲj	ŋg	
NASALS:	m	n	ɲ	ŋ	
FRICATIVES:					
voiceless	f	s	š		
voiced	v	z	ž		
LATERAL:		l			
SEMI-CONSONANTS:					
	w		y	h	

3.1 Stops

The stops lose their voicing contrast word-finally. They have an unreleased, devoiced archiphoneme in this position. Thus one finds [B, D, G, mB, nD, and ŋG] word-finally. These have been written phonemically as /b, d, g, mb, nd, ŋg/, even though they are also archiphonemes with the voiceless set, /t, k, mp, nt, ŋk/. Native speakers prefer to write these archiphonemes orthographically with the voiced set.

3.2 Nasals

The four nasal phonemes have a distribution similar to that of the stops. The bilabial nasal has a full

distribution: it occurs initially, medially, finally, and before /w/ and /y/. The alveolar nasal does not precede /w/ or /y/. The palatal nasal does not precede /y/, and neither does the velar. The velar nasal occurs initially only when preceding /w/. This limited distribution of the velar nasal resembles that of the velar stop /g/ rather than /k/. Thus the gaps in the distribution are almost symmetrical with the pattern of the stops. The four nasals are formed at the same four points of articulation as the stops.

The fact that /ɲ/ and /ŋ/ are in complementary distribution in word-final position (/ɲ/ after front vowels and /ŋ/ elsewhere) may push one to interpret these as allophones of one phoneme /ŋ/. However they contrast word-initially before /w/. This could be avoided by interpreting [ɲw] as /nw/ since /n/ does not occur before /w/. Thus [ɲ] would be an allophone of /ŋ/ when initial before vowels and when final after front vowels. [ɲ] would be an allophone of /n/ when initial before /w/. Then there would be three nasals, /m, n, ŋ/.

However, this interpretation is rejected because the resulting three nasals are not symmetrical to the series of four stops, or four prenasalized stops, at the same points of articulation as /m, n, ɲ, ŋ/. These four nasals may be classified as nasalized stops. It has been stated earlier that alveolar stops are not labialized, so it would be unusual for /n/ to be labialized. Thus there are four nasal phonemes.

It may be of interest to note that /ŋó/ is phonetically realized as [ŋṓ], in fast speech.

3.3 Fricatives

The voiced labio-dental fricative, /v/, has a very limited distribution. It is found mostly in borrowed words, some of which have become widely used by native speakers of Məkaá.

There are four grooved fricatives, /s, š, z, ž/, found in contrast radical-initially. Here again, the alveolars are not usually followed by /w/ or /y/, whereas the palatals are followed by /w/ and only rarely by /y/.

There is a gap in the distribution of the grooved fricatives radical-medially and radical-finally. [s] and [š] occur only after oral vocoids. [z] and [ž] occur only after nasal vocoids. There are three possible interpretations.

1) [s] and [z], as well as [š] and [ž], lose their contrast in the radical-medial and radical-final position, with the voiceless fricatives occurring after oral vocoids and the voiced fricatives after nasal vocoids. Thus Z is an archiphoneme with /s/ and /z/, and Ž is an archiphoneme with /š/ and /ž/. But this would introduce a large set of phonemic nasal vowels (such as i̧i̧, ǫǫ, a̧a̧, u̧u̧) which are found in no other context. (It is true that a nasal consonant causes the preceding vowel to be slightly nasalized, but it is very slight and only phonetic.) Only [ɛ̨, ɛ̨ɛ̨, ǫ̨, ǫ̨ǫ̨] are nasalized in other contexts. Thus this solution is rejected.

2) /z/ and /ž/ cause the preceding vowel to be phonetically nasalized. This solution does not add any na-

sal vowels to the inventory. /z/ and /ž/ are already phonemes. However, this would be an unusual feature for fricatives, to cause nasalization on the preceding vowel. Therefore it is rejected as a solution.

3) /z/ and /ž/ are prenasalized non-initially in a radical. So far only stops have been discussed as prenasalized and none of the fricatives, such as /f/ and /v/. Fricatives are prenasalized in other Bantu languages, such as in neighbouring Ewondo. In Konzimé, [z] is always prenasalized, thus [z] is an allophone of /s/.[4] In Məkaá, the prenasalization of the stops is realized as a nasal contoid, whereas before /z/ and /ž/ prenasalization is phonetically realized as nasalization of the preceding vowels, i.e., [ɣz] and [ɣž]. Though both voiced and voiceless stops may be prenasalized. This solution seems most preferable of the three presented here.

The weakening of the nasal contoid to nasalization of the preceding vowel follows the pattern found elsewhere in the language, that is, nasal consonants are often weakened. The final /ɲ/ following /i/ is almost lost, as in the verb radical /bwiɲ/ [bwį] 'cook'. Careful pronunciation of the radical and the formation of the infinitive [bwiɲílə] shows the existence of the consonant. The nasal consonant is there according to native speakers. Also, the two phonemic nasal vowels have probably developed historically from a vowel followed by a nasal, /ǫ́/ from *oɲ and /ɛ́/ from *ɛŋ. These particular vowel-consonant sequences do not occur in the present language.

Recognizing that /z/ and /ž/ are prenasalized only radical-medially and radical-finally, and that /z/ and /ž/ occur only radical-initially without prenasalization, the prenasalized fricatives are being interpreted as allophones of /z/ and /ž/. This posits a level (nz, nž) between the phonetic [ⁿz, ⁿž] and the phonemic /z, ž/.

Vowel Phonemes

The vowel phonemes are shown on chart 4 below, and the evidence is given in charts 9 to 26.

Chart 4: Vowel Phonemes

	FRONT				CENTRAL				BACK	
HIGH	i	ii			ɵ	ɵɵ	u	uu		
MID close	e	ee								
open	ɛ	ɛɛ	ɛ̨	ɛ̨ɛ̨	a	aa	o	oo	ɔ́	ɔ́ɔ́

sequences: iya, uwo, awo, awu
aw, aaw, ɛw, ɘw, ey, ow

The high central vowel /ɘ/ has a high front open allophone [ɩ] following palatals and palatalized consonants. Elsewhere it occurs as the high central vocoid [ɵ].

The front mid close vowels /e, ee/ have front higher-than-mid close allophones [E, EE], which occur in open syllables with a simple onset (no labialization or palatalization), if it is the first syllable of a radical. This higher-than-mid allophone may be drifting towards the high front close vowel /i/, since some speakers alternate [bi] and [bE] 'you, plural'. Otherwise, [i] and [E] are in contrast. The higher-than-mid alophone [E] is

never in contrast with the mid close vocoid [e], which occurs in other contexts than the one specified above for the higher-than-mid allophone. See charts 11 and 12 for examples.

In the oral set of mid back vowels, /o, oo/ has allophones [ɔ, ɔɔ] and [o, oo]. [ɔ, ɔɔ] occurs before /w/; [o, oo] occurs after /w/ or /y/ or before /ŋ/, and thus is quite limited. In other word-medial contexts [ɔ, ɔɔ] and [o, oo] generally occur in free variation. In all other contexts, [ɔ, ɔɔ] is preferred. The symbol /o/ has been chosen for typing convenience.

Oral vowels except /ə/ are slightly nasalized before a nasal consonant (and strongly before nz and nž, as described in 3.3). This occurs whether or not there is a syllable break between the vowel and nasal consonant.

Chart 5: Initial Consonants

	t	c	k	kp
	tá	ca	ka	kpada
	'cousin'	'salt'	'cane'	'corn beer'

b	d	j	g
ba	dâ	ja	gu
'(tree)'	'grandfather'	'time'	'kill'(vb)

mp	nt	ɲc	ŋk
mpa	nta	ɲcâ	ŋkánzə́
'(animal)'	'nephew'	'behind a plantation'	'twig'

mb	nd	ɲj	ŋg
mbá	nda	ɲja	ŋgáši
'(tree)'	'like, as'	'intestine'	'stick for hitting'

m	n	ɲ	ŋ
maga	na	ɲa	ŋwa
'good luck'	'there'	'tear'(vb)	'take'(vb)

f	s	š
fa	sâ	šá
'machete'	'thing'	'(fruit)'

v	z	ž
vuŋ	zə	ža
'(leaf)'	'come'(vb)	'hunger'

	l
	lá
	'drinking glass'

w	y	h
wâ	yaâ	hâw
'put'(vb)	'grandmother'	'yes'

Note: The parentheses, ( ), signify 'kind of ...'; in contrast to a generic term, these are specific names of species.
As in the previous examples, vowels not marked for tone are low tone.

Chart 6: Labialized Consonants

	t	c	k	kp
		cwámbâ	kwô	
		'elder'	'snail shell'	
b	d	j	g	
bwân	dwô	jwǫnz	gwa	
'children'	'your'(cl.5)	'palm' (of hand)	'far'	
mp	nt	ɲc	ŋk	
mpwo		ɲcwámá	ŋkwâl	
'old pot'		'young man'	'snail'	
mb	nd	ɲj	ŋg	
mbwolú		ɲjwóŋ	ŋgwála	
'stem of stalk of bananas'		'road'	'town'	
m	n	ɲ	ŋ	
mwǫ		ɲwá	ŋwa	
'stomach'		'up, north'	'take'(vb)	
f	s	ʃ		
fwalé		shwalé		
'(tree)'		'lizard'		
v	z	ʒ		
		žwa		
		'anus of a turtle'		
	l			
	lwámá			
	'commission, errand'			
w		y	h	
		ywô		
		'suck'(vb)		

Chart 7: Palatalized Consonants

	t	c	k	kp
		cyûŋ	kyey	
		'neck'	'leave'(vb)	
b	d	j	g	
byá		jyu	ǯugyê	
'give birth' (vb)		'open'(vb)	'(ant)'	
mp	nt	ɲc	ŋk	
mpyî		ɲcyuŋ	ŋkyêl	
'dog'		'(fly)'	'thunder'	
mb	nd	ɲj	ŋg	
mbyôl			ǯEŋgyá	
'moon'			'meeting'	
m	n	ɲ	ŋ	
myɛ				
'meat stick'				
f	s	ǯ		
fyâ		ǯyç		
'avocado'		'(tree)'		
v	z	ž		
	l			
	lyáG			
	'push in (vb) horizontally'			
w		y	h	

Chart 8: Final Consonants

	t	c	k	kp
b	d bǎD 'go up'(vb)	j	g baG 'shoulder'	
mp	nt	ɲc	ŋk	
mb bamB 'irritation of neck'	nd banD 'back of house'	ɲj kəɲJ 'send'(vb)	ŋg báŋG 'call loudly' (vb)	
m bam 'scar'	n bən 'refuse' (vb)	ɲ ndêɲ 'set a træp'(vb)	ŋ mbáŋ 'cheek'	
f bâáf 'pick up quickly'(vb)	s jáás 'gift'	š mbɛš 'hut, shelter'		
v	z zənz 'sheet-iron'	ž bɛɲž 'twig'		
	l mpal 'eagle'			
w baw 'bad' sow 'attack' səw 'season'		y lêy 'take'(vb)	h	

Chart 9: High Front Close Short Vowel /i/

	t	c	k	kp
	tí	ci	kíl	
	'ripen' (vb)	'forbid, say'(vb)	'place, half'	

b	d	j	g
bigə́	dipa	ji	
'fish hole'	'disgusting'	'stay'(vb)	

mp	nt	nc	ŋk
mpí	nti	ɲci	ŋkila
'palm nut'	'send'(vb)	'gorilla'	'panther'

mb	nd	nj	ŋg
mbi	ndimyá	ɲji	
'manner'	'packed'	'only'	

m	n	ɲ	ŋ
miž	níní	ɲi	
'eyes'	'big'	'enter'(vb)	

f	s	š
fi	siya	ší
'being	'gift'	'earth'

v	z	ž
víga	zímbí	žimba
'good wine'	'wooden box'	'push hard'(vb)

l
lí
'clear (forest)'(vb)

w	y	h
winž	yí	
'detach' (vb)	'bark'	

Chart 10: High Front Close Long Vowel /ii/

	t	c cii 'in-laws' (of a man)	k	kp
b biiga 'ferocious animal'	d	j jii 'cry'(vb)	g	
mp	nt	pc	pk	
mb mbii '(fruit)'	nd	pj pjii 'limit'	pg	
m	n	p	ŋ	
f	s	ʃ		
v	z	ʒ ʒii 'path'		
	l			
w		y yii 'trap for big animals'	h	

Chart 11: Mid Front Close Short Vowel /e/

	t	c cey 'hurt'(vb)	k kɛ̀ 'egg'	kp kpɛ̀dí 'lighter'
b bɛ̀ 'hole'	d fide 'walking stick'	j jey 'take off oil'(vb)	g	
mp məmpɛ̀ 'holes'	nt	ɲc	ŋk	
mb	nd	ɲj	ŋg	
m mEŋga '(basket)'	n	ɲ ɲey 'be torn'(vb)	ŋ	
f fɛ̂y 'cut'(vb)	s sElyá 'thing operated on'	ʃ ʃɛ̂y 'work'		
v	z zEní '(mouse)'	ʒ ʒEyí 'God'		
	l lɛ̀ 'tree'			
w wey 'friend'		y yE '(snail)'	h	

Chart 12: Mid Front Close Long Vowel /ee/

	t	c	k	kp
b	d	j	g	
bÊÊga 'separate from one another'(vb)				
mp	nt	ɲc	ŋk	
mpÊÊ 'pot'				
mb	nd	ɲj	ŋg	
		ɲjÊÊmbí 'way of cooking'		
m	n	ɲ	ŋ	
		ɲéela 'murmur'(vb)		
f	s	ʃ		
v	z	ʒ		
	l			
w		y	h	

Chart 13: Mid Front Open Short Vowel /ɛ/

	t	c	k	kp
	tɛD	cɛl	kɛ̂G	kpɛ̂nD
	'begin'(vb)	'want'(vb)	'take off stem'(vb)	'split' (vb)

b	d	j	g
bɛ̂w	dɛnD	jɛ̂l	
'injure oneself'(vb)	'in one swallow'	'fly'(vb)	

mp	nt	ɲc	ŋk
mpɛ̨nž	ntɛ́mB	ɲcɛdɛ̂	ŋkɛn
'twigs'	'pull'(vb)	'(pepper)'	'rejoice'(vb)

mb	nd	ɲj	ŋg
mbɛ̂	ndɛ̂ɲ		
'entrance'	'set (traps)' (vb)		

m	n	ɲ	ŋ
mɛnD	nɛla	ɲɛ	
'be tight' (vb)	'slow'	'dissolve' (vb)	

f	s	š
fɛ̂l	sɛŋgya	šɛmB
'explain' (vb)	'thing cut'	'abort'(vb)

v	z	ž
		žɛm
		'hoot'(vb)

	l
	lɛ́mB
	'pull'(vb)

w	y	h
wɛl	yɛ́š	
'raise'(vb)	'desire'	

Chart 14: Mid Front Open Long Vowel /ɛɛ/

	t	c	k	kp
		cɛɛlya 'love'		
b	d	j	g	
	nə dɛɛ 'for a long time'	nə jɛɛ 'for a long time'		
mp	nt	nc	ŋk	
mpɛɛgí 'differences'				
mb	nd	ɲj	ŋg	
m	n	ɲ	ŋ	
mɛɛl 'finish'(vb)				
f	s	ʃ		
v	z	ʒ		
	l			
w		y	h	

Chart 15: Mid Front Open Short Nasal Vowel /ɛ̃/

	t	c	k	kp
		cɛ̃ 'antilope'	kɛ̃ 'wisdom'	
b	d	j	g	
bɛ̃ 'follow, plant'(vb)	dɛ̃ 'tadpole'	jɛ̃ 'grill'(vb)		
mp	nt	nc	ŋk	
mpɛ̃ 'yaws'			ŋkɛ̃lɛ́ 'bell'	
mb	nd	ɲj	ŋg	
mbɛ̃yɛ́ 'planter'				
m	n	ɲ	ŋ	
mɛ̃yá 'thing sculpted'				
f	s	ʃ		
		ʃɛ̃ 'sand'		
v	z	ʒ		
	l			
w		y	h	

Chart 16: Mid Front Open Long Nasal Vowel /ɛ̃ɛ̃/

	t	c	k	kp
	nɔ́ tɛ̃ɛ̃ 'very bitter'			
b	d	j	g	
bɛ̃ɛ̃ 'canoe'				
mp	nt	nc	ŋk	
mb	nd	nj	ŋg	
		njɛ̃ɛ̃ 'bamboo'		
m	n	ɲ	ŋ	
f	s	ʃ		
v	z	ʒ		
		ʒɛ̃ɛ̃lɔ́ 'sixth finger'		
	l			
w		y	h	

Chart 17: High Central Short Vowel /ə/

	t	c	k	kp
	tə́tə́m	cɛ	kə	
	'middle'	'stumble'(vb)	'go'(vb)	
b	d	j	g	
bə	də́	jɛ		
'be'(vb)	'eat'(vb)	'tooth'		
mp	nt	ɲc	ŋk	
mpə́	ntənD		ŋkə́D	
'smell'(vb)	'saliva'		'wicked'	
mb	nd	ɲj	ŋg	
mbə́l			ngə	
'sick person'			progressive marker	
m	n	ɲ	ŋ	
mə	nə	ɲɛ		
'I'	'and, with'	'he, she'		
f	s	ʃ		
fəfə́	sə	ʃʔ		
'wind'	'we (exclusive)'	'termite'		
v	z	ʒ		
vədə́	zə			
'but'	'come'(vb)			
	l			
	lə́sʊ́			
	'language'			
w		y	h	
		yɛ		
		'give, die' (vb)		

Chart 18: High Central Long Vowel /əə/

There was only one example found in words in isolation.

mpəə́ 'odor'

Chart 19: Mid Central Short Vowel /a/

	t	c	k	kp
	taG	caD	kás	kpásaga
	'be tired' (vb)	'(bird)'	'fool'	'rince mouth'(vb)

b	d	j	g
bâw	daŋ	jâm	
'massage' (vb)	'(lice)'	'weakness'	

mp	nt	ɲc	ŋk
mpál	ntanD	ɲcaga	ŋkaw
'half'	'spider web'	'firewood'	'goitre'

mb	nd	ɲj	ŋg
mbaG	nda	ɲjâm	ŋgádan
'baggage'	'like, as'	'bat'	'plant nursery'

m	n	ɲ	ŋ
mán	naD	pâ	
'tomorrow'	'bowstring'	'fingernail'	

f	s	ʃ
fál	sás	ʃá
'(fruit)'	'girl'	'(fruit)'

v	z	ʒ
val	zâŋ	ʒaG
'manner'	'feast, dance'	'pineapple'

	l
	lamB
	'barrel'

w	y	h
was	yasó	hâ
'twin'	'bone'	'strong wine'

Chart 20: Mid Central Long Vowel /aa/

	t taaD 'slice'(vb)	c caanD 'measles'	k kaamś 'story'	kp
b báal '(basket)'	d dáágś 'crab'	j jaas 'be hard'(vb)	g	
mp mpáál 'trace'	nt ntáán 'call'	nc	ŋk ŋkaaw 'bracelet'	
mb mbáaw 'leaves for massage'	nd	ɲj ɲjáámB 'prepared food'	ŋg	
m maan 'intersection'	n	ɲ ɲaam 'press'(vb)	ŋ	
f faas 'resuscitate'	s sááG 'dance'(vb)	š šaá 'feather'		
v	z	ž		
	l láámB 'trap'			
w waas 'comb'		y yaasś 'dish'	h	

Chart 22: High Back Long Vowel /uu/

	t	c	k kuú 'foot'	kp
b buundú 'shell, skin'	d	j juu 'thigh'	g guus '(tree)'	
mp mpuú 'raphia leaf'	nt	nc ɲcuú 'dry wood'	ŋk ŋkuu 'pig'	
mb	nd	ɲj	ŋg	
m muuD 'person'	n	ɲ ɲuumbulu 'way of walking'	ŋ	
f	s	ʃ ʃuú 'jigger'		
v	z	ʒ		
	l lúúG 'button'			
w		y yuú 'salamander'	h	

also: ŋkʃʃnzú 'head of hair'

Chart 23: Mid Back Short Vowel /o/

	t tɔ́ 'even' togútogú 'gently'	c cɔgɔ́ '(callebash)'	k kɔ́sú 'hand of bananas'	kp
b bɔ́mbú 'board'	d dɔmB 'war'	j jo̱nz 'sympathy'	g	
mp	nt ntɔ́ 'thus'	nc	ŋk ŋkɔndú 'crocodile'	
mb mbɔ̂ 'no'	nd ndɔlú 'difficulty'	ɲj ɲjɔ̂ŋ 'stranger'	ŋg	
m mɔ̂l 'canoes'	n nɔ̂m 'fish-hook'	ɲ ɲɔs 'duck'(vb)	ŋ	
f fɔdɔG 'hoof'	s soŋgú 'father'	ʃ ʃɔ̂w 'overflow'(vb)		
v	z zɔnzúlu '(fruit)' l lɔnD '(tree)'	ʒ		
w wɔ̂m 'leave'(vb)		y yɔ̂ŋ 'cold'	h	

Chart 24: Mid Back Long Vowel /oo/

	t tɔɔD 'drier'	c	k kɔɔs 'rise'(vb) (of the sun)	kp
b bɔɔG 'hoe'	d	j jɔɔG 'cover'	g	
mp	nt	ɲc ɲcɔɔG 'carving instrument'	ŋk	
mb mbɔɔG 'border of a field'	nd	ɲj ɲjoonD 'trip'	ŋg	
m	n nóɔlə 'insist'(vb)	ɲ ɲoolú 'brother- or sister-in-law'	ŋ	
f	s	ʃ		
v	z zoomú 'flowering season' l	ʒ ʒoolú 'scaly ant-eater'		
w wɔ́ 'domestic animal'		y	h	

Chart 25: Mid Back Short Nasal Vowel /ɔ̃/

	t	c	k	kp
	tɔ̃	cɔ̃	kɔ́	
	'drier'	'rat'	'grow'(vb)	
b	d	j	g	
bɔ̃	dɔ̃	jɔ̃jɔ̃		
'(banana)'	'herd'	'kind'		
mp	nt	ɲc	ŋk	
	ntɔ̃	ɲcɔ̃	ŋkɔ́	
	'pass'(vb)	'digging stick'	'healer'	
mb	nd	ɲj	ŋg	
m	n	ɲ	ŋ	
f	s	ʃ		
	sɔ̃			
	'look for' (vb)			
v	z	ʒ		
	l			
	lɔ̃			
	'read, count' (vb)			
w		y	h	
wɔ̃				
'(bird)'				

Chart 26: Mid Back Long Nasal Vowel /ɔ̃ɔ̃/

	t	c	k	kp
		cɔ̃ɔ̃lə 'attach'(vb)	kɔ̃ɔ̃lɔ́ 'root'	
b	d	j	g	
bɔ̃ɔ̃lɔ́ 'something thrown'		jɔ̃ɔ̃ 'kind'		
mp	nt	ɲc	ŋk	
mpɔ̃ɔ̃ '(macabo)'				
mb	nd	ɲj	ŋg	
mbɔ̃ɔ̃lɔ́ 'child who follows'				
m	n	ɲ	ŋ	
f	s	ʃ		
v	z	ʒ		
	l			
w		y	h	
wɔ̃ɔ̃lə 'go fast' (vb)				

5 Tone

There are two tone levels, /High/ and /Low/, which may occur singly or in sequences. These may combine to form the following tone patterns on radicals in isolation:

Chart 27: Tone Patterns on Noun Radicals

one-syllable	two-syllable	three-syllable
L	L L	L L L
		L L H
		L L HL
	L H	L H L
	L HL	
H	H L	H L L
		H L H
	H H	H H L
		H H H
		H H HL
	H HL	
HL	HL L	
	HL H	
LH		

Examples:

/kwoŋ/ 'back'	/ǰiŋga/ 'wick'	/luŋgəla/ 'fence'
		/fafəgə́/ 'wing'
		/miyoŋə̂/ 'sibling'
	/ǰeŋgyá/ 'meeting'	/fulúsag/ '(leaf)'
	/ǰiǰím/ 'silhouette'	
/kwóŋ/ 'frog'	/ǰiŋga/ 'cat'	/címbəla/ 'groan'
/ǰúú/ 'water spring'		
		/káyaŋə́/ 'pineapple leaf'
	/ǰwəfá/ 'mud'	/ǰúúgəle/ 'scratch'
		/bəwúle/ 'wound'
		/təd̂əgá/ 'thought'
		/ǰúgəlá/ 'edge'
	/jáǰwəl/ 'chin'	

/kwə̂/ 'basket'
/ʃʊ̄/ 'fish'

/gúuga/ 'killing'

/fâŋə́/ 'other side'

/kwə̂ə̂/ 'spear'
/ʃuu̇/ 'jigger'

Chart 28: Tone Patterns on Verb Radicals

one-syllable	two-syllable	three-syllable
L	L L	L L L
H	H L	H L L
HL	HL L	

Examples:

/bɛmb/ 'worry' /ji/ 'sit'	/bɡla/ 'look alike' /jilə/ 'be heavy'	/bagələ/ 'keep'
/bɛ̂nd/ 'be split' /jí/ 'be'	/bâda/ 'greet' /jílə/ 'be satisfied'	/búgəla/ 'believe'
/bɛ̂w/ 'hurt oneself' /jí/ 'grind'	/ɲɛ́ɛlə/ 'watch'	

Note that the LH sequence occurs only on long vowels. It also occurs on short vowels in specific morphophonemic contexts, such as infinives (example /dəʃə/ 'to eat'). More analysis is needed.

Words with more than three syllables have a large number of tone patterns. Rising tone (LH) does not occur on these, and falling tone (HL) occurs only on the final syllable.

Underlying tones differ from these surface tones, described above, and underlying tones play a great role, as seen when words are put into context. The description of morphotonemics will be left for subsequent studies.

6 Units above the Phoneme

6.1 Syllable

There are three types of syllables, as follows:

V

$C(^{w}_{y})V$

$C(^{w}_{y})VC$

The onset may or may not be labialized or palatalized. The nucleus may be filled by any vowel, whether long or short. Any of the four tone patterns may occur. Chart 29 shows the distribution of consonants in the onset and the coda. For examples see charts 4-7.

Chart 29: Consonant Distribution in the Syllable

consonants in the onset:

(simple onset)

	t	c	k	kp
b	d	j	g	
mp	nt	ɲc	ŋk	
mb	nd	ɲj	ŋg	
m	n	ɲ	ŋ	
f	s	š		
v	z	ž		
	l			
w		y	h	

(labialized)

		c	k
b		j	g
mp		ɲc	ŋk
mb	nd	ɲj	ŋg
m		ɲ	ŋ
f		š	
		ž	
	l		
		y	

(palatalized)

	c	k
b	j	g
mp	ɲc	ŋk
mb		ŋg
m		
f	š	
	l	

consonants in the coda:

	d		g
mb	nd		ŋg
m	n	ɲ	ŋ
f	s	š	
	z	ž	
	l		
w		y	

6.2 Radical

A radical is defined here as the morpheme (or minimal grammatical unit) that is the central unit of meaning in a word. To this radical, affixes may be added to form a phonological word. The radical has been relevant to this study, even though it is more grammatical than phonological, because it is useful in describing the distribution of consonants and vowels, as well as tonemes.

There are twelve types of radicals, as follows:

CV.	CVC.	-V.	-VC.
CV.CV.	CV.CVC.	-V.CV.	-V.CVC.
CV.CV.CV.	CV.CV.CVC.	-V.CV.CV.	
CV.V.			

The consonant-initial radicals may or may not have affixes. The vowel-initial radicals always take a prefix, in the form of C-. The C- prefix has been separated as a prefix for grammatical rather than for phonological reasons. These vowel-initial radicals are few in number. When describing the distribution of consonants, vowels, or tonemes, the C- prefix of the vowel-initial stems acts the same as the initial consonant of the consonant-initial stems. Further, the first consonant of vowel-initial stems acts the same as the second consonant of consonant-initial stems. For example, labialization occurs only on the first consonant of consonant-initial radicals or on the C- prefix of vowel-initial radicals. Palatalization occurs in the same position, as well as on the second consonant of consonant-initial radicals and on the first consonant of vowel-initial radicals,

provided that these radicals consist of only two syllables. This is shown in the chart below.

C($^{w}_{y}$)V.	C($^{w}_{y}$)VC.	-V.	-VC.
C($^{w}_{y}$)V.C($_{y}$)V.	C($^{w}_{y}$)V.C($_{y}$)C.	-V.C($_{y}$)V.	-V.C($_{y}$)VC.
C($^{w}_{y}$)V.CV.CV.	C($^{w}_{y}$)V.CV.CVC.	-V.CV.CV.	
		PREFIX:	C($^{w}_{y}$)-

Because of this pattern and because of the small number of vowel-initial radicals, the phrase 'first consonant of a radical' (C_1) will be used to refer to the obligatory C- prefix of a vowel-initial radical as well as the first consonant of a consonant-initial radical. Similarly, the phrase 'second consonant of a radical' (C_2) will be used to refer to the first consonant of a vowel-initial radical as well as the second consonant of a consonant-initial radical.

The radical type CV.V. is rare and has not been found with labialization or palatalization on the consonant. Some examples are /i-fiî/ 'ashes', /yaâ/ 'grandmother', and /ʒǫǫ/ 'millepede'. The vowel pattern has been discussed in section 2.3.

The above are noun radical types. All of the seven consonant-initial radical types can also be found in the verbs.

The following chart shows which consonants can occur in which positions of the radical:

Chart 30: Consonant Distribution in the Radical

C_1 (simple)					(labialized)				(palatalized)			
	t	c	k	kp			c	k			c	k
b	d	j	g		b	d	j	g	b		j	
mp	nt	ɲc	ŋk		mp		ɲc	ŋk	mp		ɲc	ŋk
mb	nd	ɲj	ŋg		mb		ɲj	ŋg	mb			
m	n	ɲ			m		ɲ	ŋ	m			
f	s	š			f		š		f		š	
v	z	ž					ž					
	l					l				l		
w		y	h				y					

C_2 (simple)				(labialized)	(palatalized)		
b	d	j	g		b	d	g
mb	nd	ɲj	ŋg		mb	nd	ŋg
m	n	ɲ	ŋ		m		
f	s	š				š	
	z	ž					
	l					l	
w		y					

C_{final} (only simple)

	d		g
mb	nd	ɲj	ŋg
m	n	ɲ	ŋ
f	s	š	
	z	ž	
	l		
w		y	

6.3 Phonological Word

Generally, a phonological word consists of a radical plus one or more affixes. An affix may be a prefix, suffix, or infix.

Prefixes are in the form V-, C-, or CV-.

Examples:

/lá/ 'glass'(cl.7)	/i-lá/ 'glasses'(cl.8)
/fa/ 'machete'(cl.9)	/mə-fa/ 'machetes'(cl.6)
/ɲ-jôŋ/ 'stranger' (cl.1)	/o-jôŋ/ 'strangers'(cl.2)
/j-ínə/ 'name'(cl.5)	/m-ínə/ 'names'(cl.6)

Suffixes take the form -CV or -C after open syllables, and -V, -VC or -VCV after closed syllables. When the suffix takes the form -VCV, the first V is an /ə/, like the epenthetical [ə] inserted between consonants that are contiguous across word boundaries.

Examples:

/lû/ 'head'	/lû-d/ 'on the head'
/kwoŋ/ 'back'	/kwoŋ-əd/ 'on the back'
/wâ/ 'put'(vb)	/wâ-g/ 'put!'(imperative)
/wâ/ 'put'(vb)	/wá-lə/ 'to put' (infinitive)
/wol/ 'get out of bed'(vb)	/wol-ég/ 'get out of bed!' (imperative)
/wol/ 'get out of bed'(vb)	/wol-əg-â/ 'get out of bed!' (imperative plural)
/ǰín/ 'be finished' (vb)	/ǰín-ələ/ 'to be finished' (infinitive)

Infixes are replacive, usually one vowel for another.

Examples:

/bwâd/ 'get dressed' (vb)	/bwéd/ 'dress someone else' (vb)
/jaand/ 'go'(vb)	/ɲ-joond/ 'trip'

Some words may be complex, due to reduplication or the presence of more than one radical.

Examples:

/kûkûm/ 'rich man'

/kílkíl/ 'silent'

/ŋgúŋgû/ 'bad odor'

/mbêləmyên/ 'fool'

/asámbélésámbélê/ 'salamander' (it cuts, it cuts)

/ŋgwágələwû/ 'deaf person' (whose hearing left)

/têweshóg/ 'superior' (stand before)

Complex words may break the phonological rules established for simple words. Complex words are typically longer; up to seven syllables have been found in one word. Closed syllables are found non-finally, so that consonants cluster together in a way not found in simple words (such as /gs, nb, md, lk, lf/). There may or may not be an epenthetical [ə] separating these. Palatalization and labialization occur also on syllables other than the first or second. These words can begin with a vowel, without an obligatory C- prefix.

Borrowed words sometimes can break the phonological rules, and then they ressemble complex words more than simple words.

Example:

/bâsko/ 'bicycle'

Notes

1. This map was adapted from a map of the United Republic of Cameroun (scale 1/1 000 000), drawn and published by the Institut Géographique National, Centre Yaoundé (1ère édition, 1972).

2. Research was done under research authorizations Nos. 237 (1978) and 18 (1981), issued by the General Delegation for Scientific and Technical Research.

To our many Məkaá friends we owe a big thanks, especially to Zé Mpouéné Saturnin, Nguélé Gregoire and Mikouas Henri who gave their time to help us learn the language and gather the necessary data. The help and motivation of the members of the 'Association des Promoteurs des Recherches Linguistiques et de la Conservation du Patrimoine Culturel du Peuple Mekaa' also proved an encouragement and stimulation for us.

We are indebted to Dr. Ursula Wiesemann for her comments and helpful criticisms on the organization of the paper. Soeur Marie-Anne Toreton also greatly helped and encouraged us with her observations on the language, both written and oral. To all these people we express our sincere thanks.

3. W. Welmers, African Language Structures, p. 30.

4. Keith Beavon, Phonological Analysis of the Konzimé Language, p. 17.

Bibliography

Beavon, Keith. 1977. Phonological Analysis of the Kɔnsimè Language (Dialect of Lomié). S.I.L., Yaoundé.

_____ and Mary Beavon. 1981. 'The Interaction of Intonation with Lexical and Syntactic Tones' (ms)

_____. (To appear). 'A phonological Description of Kɔnzime', in Coupez, A. (ed.), Africana Linguistica. Musée Royale de l'Afrique Centrale, Tervuren.

_____. (To appear). 'Suprasegmentals in Kɔnzime', in Studies in African Linguistics. UCLA, Los Angeles.

Geschiere, Peter. 1975. 'Traditional Elders, Colonial Chiefs and Modern Intellectuals: Leadership and changes in the Maka villages (South East Cameroun), in Kroniek Van Afrika. Afrika-Studiecentrum, Leiden. pp. 89-119.

_____. 1978. 'The Articulation of Different Modes of Production: Old and New Inequalities in Maka Villages (Southeast Cameroon), in African Perspectives. Afrika-Studiecentrum, Leiden. pp. 45-68.

_____. 1978. Stamgemeenschappen onder Staatsgezag: Veranderende Verhoudingen binnen de Maka Dorpen in Zuidoost Cameroun sinds 1900. (doctoral dissertation). Vrije Universiteit, Amsterdam. 535 pp.

_____. 1980. 'Child-Witches against the Authority of their elders: Anthropology and History in the Analysis of Witchcraft Beliefs of the Maka (Southeast Cameroun). Leiden.

Guthrie, Malcolm. 1971. Comparative Bantu. Gregg International, Hants, England. Vol. II.

Heath, Daniel. 1982. 'The Dialect Situation of the Makaa Language'. (ms)

Renaud, Patrick. 1976. Le bajɛle: phonologie, morphologie nominale. Les Dossiers de L'ALCAM. Vol. 1-2, ONAREST, Yaoundé.

Toreton, Marie-Anne. n.d. Aperçu Grammatical de la langue 'Mɛkâ Mbwâŋz'. Mission Catholique, Nguélèmendouka. (mimeographed). 28 pp.

_____. n.d. Lexique. Mission Catholique, Nguélèmendouka. (mimeographed). 52 pp.

Welmers, Wm. E. 1973. African Language Structures. University of California Press, Los Angeles.

A Phonology of the Məkaá Language

by
Daniel Heath
and
Teresa Heath
Cameroon

February 1982